PROFILE: REDSTONE COLLEGE

Wind Energy Technology program balances classroom instruction with hands-on experience to prepare the next generation of wind turbine technicians for the careers ahead

By Stephen Sisk

Photos courtesy of Redstone College

Since its founding in 1965, Redstone College in Denver, Colorado has been committed to providing students with quality, skill-based educational opportunities centered around industry demand.

Originally focused on airframe and power plant training, the institution has expanded in the decades since to include avionics and HVAC. In 2010, amid accelerated growth of the wind energy industry in the U.S., Redstone College started its Wind Energy Technology (WET) program with the goal of preparing students for stable, well-paying jobs in the wind sector.

"Our mission is to get the students good jobs so that they can take care of themselves and their families," said Travis Perko, a former wind energy technician who currently serves as Redstone's WET program director." Personally, I went through a wind program. I love wind. And when I physically couldn't climb anymore, this is a way for me to be able to give back to the industry by putting out qualified techs. That's really the biggest mission — putting out the best quality product, which is our students, into the industry that we can."

Considering the nature of the work performed by wind energy technicians, properly training students for their chosen careers requires an approach that combines classroom instruction with a significant amount of hands-on training.

Striking the proper balance, Perko said, is key to successfully preparing students for the industry.

"When I first started at this school a year ago, there was a lot of hands-on, but there was a lot of academic as well," he said. "The other schools out there are highly academic, so I'm constantly challenging my instructors to come up with more labs and new ways to give the students hands-on experience for when they get into the field.

The WET program at Redstone is an Associate of Occupational Studies degree program, encompassing 90 credit hours obtained by completing 17 courses taken over six terms. The duration of the program is typically 15 months.

The course curriculum is designed to give students a solid, foundational knowledge of safety, electronics, turbine systems, industrial controls and automation, and maintenance and troubleshooting.

Hands-on experience at Redstone is gained primarily through lab situations using onsite wind-energy specific equipment, including a Vestas V27 nacelle for advanced troubleshooting, and a 35-foot climb tower for climbing safety certification.

"Most of them, when they leave here, they are no longer afraid of electricity and they're not afraid to climb," Perko said.

That fact is evidence of Redstone's core emphasis on work safety.

"One of the biggest focus areas for us is safety — making sure

that when students leave, they have an appreciation for being at-height and for being around rotating machinery," Perko said. "They also have an appreciation of electricity so that they're not going to jump into a situation that is not safe."

The WET program typically has an enrollment of 65-80 students. While each individual student's motivation for pursuing a career in wind energy differs, many Redstone WET enrollees enter the program due to the economic advantages over similar skilled professions.

Although most students who graduate from Redstone's WET program choose to seek employment in the wind energy industry, others find work in industries which require similar skill sets — such as oil & gas and light rail.

ALSO IN THIS SECTION:

Overall, job placement numbers at Redstone are impressive, with over 95 percent of graduates employed at or near graduation.

Additional information about Redstone College's Wind Energy Technology program, including course descriptions, career outlook, program brochure, and course catalog can be found online at www.redstone.edu/wind-energy. For information about admissions and the application process, call (888) 547-4037 or visit www.redstone.edu/admissions.

Redstone College Wind Energy Technology program

Location: Denver, Colorado
Degree: Associate of Occupational Studies
Duration: 15 months (6 terms)
Credit Hours: 90
Number of courses: 17 (13 core; 4 general education)
Subjects: wind energy, safety, electronics, motors and generators, controllers, turbine design, turbine systems & components, maintenance, troubleshooting
Equipment: Vestas V27 nacelle (lab setting); 35-foot climb safety training tower
Admissions requirements: High school diploma or equivalent (e.g., GED); admissions interview
Application process: Contact admissions representative. Additional information available online.

Contact:

Web:
www.redstone.edu/wind-energy
Phone: (888) 547-4037

Report: U.S. clean energy job postings reach 1.2 million

Ecotech Institute's Clean Jobs Index reported more than 1 million green energy job postings across the nation in the first quarter of 2015. The Clean Jobs Index classifies clean energy jobs based on the Bureau of Labor Statistics description, which says that clean jobs are jobs in businesses that produce goods or provide services that benefit the environment or conserve natural resources. The classification also includes jobs in which workers' duties involve making their establishment's production processes more environmentally friendly or use fewer natural resources.

Ecotech Institute, a school dedicated solely to renewable energy and sustainability, created the Clean Jobs Index to provide objective information about renewable energy jobs and to compare states' use and development of clean and sustainable energy.

"As more businesses look for ways to conserve energy and renewables continue to gain traction, more jobs are becoming available," said Chris Gorrie, Ecotech Institute's president. "States have come to see clean energy sources as an important piece of infrastructure, opening the door to great opportunities in renewable energy."

The total number of U.S. clean jobs postings in the first quarter of 2015 was 1.2 million, according to the report. Additionally, the top-three states with the most clean jobs openings were California with 131,215, Texas with 90,281, and New York with 71,748 openings. Compared to the first quarter of 2014, states with the highest rise in clean jobs openings included Rhode Island, New York, Texas, North Carolina, and Maryland.

Ecotech Institute's Clean Jobs Index is an aggregation of statistics by state. Although it may indicate a greater possibility for employment in the clean economy sector, the Clean Jobs Index in no way indicates the presence or the promise of any specific job opportunities. Data for the Index is gathered regularly from independent research entities including: American Council for an Energy-Efficient Economy, Database of State Incentives for Renewables & Efficiency, U.S. Energy Information Administration, U.S. Department of Energy and the U.S. Green Building Council.

For more information about the Clean Jobs Index, visit www.ecotechInstitute.com/CleanJobsIndex.

— Source: Ecotech Institute

Responding to student concerns about wind vs. cheap oil

By Walter Christmas
Ecotech Institute

If you read my article last month, you may have enjoyed some of the naïve but entertaining questions prospective wind energy students ask the wind instructors during campus tours. As they approach graduation, their questions take on a more serious tone. One recurring theme as of late is related to falling oil prices.

"Will cheap oil drive wind energy out of the electricity market?" is a question I've been asked in various ways. While I feel compelled to highlight the positives while still including the negatives, I have developed a lengthy but compelling answer to this question.

According to the Energy Information Administration (EIA), in 1973 when America's energy industry was rocked by the first OPEC Oil Embargo, roughly 15 percent of our electrical needs were supplied by oil. This was a large enough percentage that electricity bills ate up a much larger portion of the average monthly household budget. This spurned strong public support for renewable energy development. Nixon supported NASA wind energy research, and Carter installed solar panels on the roof of the White House. Three world-class wind sites — Altamont Pass, Tehachapi, and San Gorgonio Pass — experienced heavy wind farm development in California beginning in 1979. By 1986, however, Americans settled into the comforts of stable economic growth including relatively stable and cheap oil prices. Renewable energy fell out of favor, although oil played a continuously smaller role in the great pie graph of electrical energy sources as well. Instead, cheap coal and natural gas were listed as America's foundational power sources. Today, only about 0.3 percent of America's electrical needs are met directly by the burning of oil. Apparently, wind and oil no longer compete with each other in the electrical energy market.

Oil has become almost exclusively a transportation fuel. There is little overlap between the use of oil and wind for the purpose of transportation. Wind is only a transportation fuel to the extent that America's fleet of electric vehicles recharge from the grid. In an October 2014 blog post, the Sierra Club celebrated when electric vehicle sales hit an all-time high of 0.85 percent of monthly vehicle sales. It may seem like we are seeing Teslas and Nissan Leafs everywhere we go, but they are still a tiny portion of the transportation energy market where petroleum reigns supreme. Clearly, wind and oil do not compete very much in the transportation energy market either.

So does the price of oil have any impact on wind energy? You bet it does! Cheap oil and the resultant cheap transportation fuels it derives have a very favorable impact on wind farm construction budgets including lower costs for manufacturers. According to the American Logistics Association, fuel costs can account for up to 65 percent of an industry's logistics budget. Lower fuel costs leave more room in the budget for profits for OEMs, wind farm developers, and owners. Every turbine, component, tool, and service truck can move about the country at a lower cost when the price of oil is low. It stands to reason that this encourages stronger investment in wind energy as well. However, this leads us into more complicated questions regarding the availability of investment capital.

Energy investors often hedge their bets by diversifying amongst various energy sources and service providers. Losses in upstream oil production revenue leaves some heavy hitter investors with less cash to invest in other energy options. On the other hand, pessimism in oil stocks makes renewable energy stocks look pretty attractive and promising to those who can justify the cash outlay. If British Petroleum had not divested itself of most of its wind holdings a couple of years back, it may have enjoyed the hedge against its 20 percent loss in stock price since May 2014.

Warren Buffett's Berkshire Hathaway is a mixed bag when

it comes to the drop in oil prices. Burlington Northern Santa Fe railroad, a Berkshire Hathaway holding, profited handsomely from the transport of Bakken petroleum until drilling efforts backed off recently. Soon, rapid decline rates in the production from Bakken wells will result in falling revenue for BNSF. However, Berkshire holdings in retailers such as Walmart will benefit from cheaper logistics. Most importantly, Berkshire Hathaway Energy (BHE) has been making bold investments in renewable energy through holdings like MidAmerican Energy, Pacificorp, and NV Energy. Of these investments, 60 percent of the installed capacity will be in wind energy. It seems Warren Buffett shares my views on the benefits of fixed energy costs that wind energy provides. I'm sure he'll sleep better at night knowing that we agree on this.

The pink elephant in the room cannot be ignored. How is the competition between wind and coal affected by low oil prices? Simply stated, when oil is cheaper, coal is cheaper. Mining and transport costs of coal drop. This certainly does not guarantee increased investment in coal-fired power plants, however. The threat of an eventual carbon tax makes this idea far too risky, but... we must consider how newly installed wind energy must compete with the existing capacity for coal to power our grid with cheap, reliable energy. This competition in coal-rich states does have a negative impact on the risk inherent in any new power plant investment, wind being no exception. To remain optimistic amidst this debate, we must consider the long-term perspective. Oil, as a nonrenewable resource with proven price instability, will not always help coal maintain its affordability. Coal-fired power plants require lifelong input of its market-priced fuel. Wind energy, on the other hand, is a heavily front-loaded investment. Wind farms require a very large initial investment with relatively inexpensive and predictable O&M costs for the remainder of their service life of 20 to 25 years. Unlike coal, the input fuel for a wind farm is free. If we can cut a sizeable portion of wind energy development costs while oil prices are low, then investors should take advantage of this in the interest of hedging against future increases in oil prices. Profitability of coal will inevitably decline as oil prices increase, but the cost savings will have already been locked into the levelized cost of energy (LCOE) of wind farms. With or without a power purchase agreement, this adds up to savings that any utility or utility customer will enjoy.

In light of cheap oil, I feel confident in telling my students that their future in wind energy is secure and bright. They will see astronomical growth in our industry in the next decade, and cheap oil only helps us grow even faster than many of us had expected. If oil prices rise again, as I believe most energy economists expect, wind energy will still benefit by offering fixed, predictable costs and profits in an otherwise chaotic energy market.

WIND ENERGY TECH PROGRAM RESPONDS TO GROWING NEED

Western Iowa Tech prepares the next generation of the wind workforce in the heart of wind country

The state of Iowa has long been connected with agriculture, but today there are new farms — wind farms — sprouting up in America's heartland.

A national leader in wind energy, Iowa generates more than one-quarter of its electricity from wind. As future projects are planned, demand will only grow. For instance, Iowa is currently generating 5,600 megawatts of wind but expects that number to exceed 7,000 megawatts by 2017.

"We anticipate a great need for technicians to take care of wind energy equipment," said Darin Moeller, executive dean of instruction at Western Iowa Tech Community College in Sioux City, Iowa.

Moeller's right. The number of wind turbines in Iowa and the United States continues to increase, as does the need for skilled workers able to install, maintain, service, and operate them.

Options and opportunities

To meet the need, the college has built a top-notch wind energy technician program at its satellite campus in nearby Cherokee, Iowa. This field of study trains students as technicians and/or operators based on whether they choose WITCC's one-year diploma option or two-year associate degree.

Students pursue the wind energy technician program for different reasons. For some, it provides practical training that can lead to a good job and a better life. For others, it's a chance to connect with the growing green movement and make a positive impact on the environment.

Course work covers wind energy turbine systems, of course, along with electrical theory, industrial electronics, instrumentation, principles of motors, and more. Also included are credit hours in physical fitness — a valuable foundation since wind techs climb up to 200 feet on the way to their workplace.

At the top of the turbine, they work in a space roughly the size of a small bus and work on high-voltage circuitry amidst some 8,000 parts.

Western Iowa Tech's program prepares them to rise to the challenge.

All wind energy instructors have experience in the field, so they lend a level of expertise that's particularly helpful. "They've been there, done that," said Moeller. "They can really prepare students for issues to expect in the industry."

Ultimate hands-on training

What's more, students gain hands-on experience using an 80-foot turbine installed by wind and solar specialists out of Alta, Iowa.

"This resource provides immediate access for our students," explained Dr. Terry Murrell, WITCC president. "That's key to their training in this area."

College officials hope to one day harvest the energy from this turbine and help power the institution. For now, it's the most visible lab on campus.

"We want to provide all students with realistic experiences similar to the ones they'll find in their jobs," Moeller explained. "For this program, having the turbine that students can climb up and monitor ... it takes their opportunities to a whole new level."

Having a turbine on campus exemplifies the college's commitment level to the cause, noted Moeller. "This was identified as a priority for the wind energy technician program, and it came to fruition through great partnerships."

Students are excited about the turbine, shared Dr. Darla Struck, who directs Western Iowa Tech's campus in Cherokee. "They had a hand in its construction, and they're involved with every facet of running this windmill — all the maintenance, operation, and production that goes along with creating energy for a power grid."

Perhaps the best part, she added, is that wind energy technician students can use those experiences to get jobs in the field.

Strong job market

Truth be told, job prospects shouldn't be an issue. After completing the program, students realize virtually endless opportunities in a field that's essentially government-mandated to grow ... and grow quickly.

Wind energy technician grads can pursue careers in operating, maintaining, and repairing wind turbine systems, along with site safety management, project site management, wind farm management, wind site assessment, and system installation.

According to the Bureau of Labor Statistics, the median annual wage for wind turbine service technicians was $45,970 in May 2012. Employment of wind turbine service technicians is projected to go up 24 percent by 2022 — faster than average for most occupations.

Indeed, wind is the fastest growing energy source in the United States, with production increasing daily at amaz-

ing rates. A recent report by the U.S. Department of Energy suggests wind energy could contribute 20 percent of the nation's electricity by 2030. Job prospects should be excellent for wind energy technician graduates everywhere ... but especially in the Midwest.

"Wind power is very important in the state of Iowa, and we are a leader in wind energy," said Iowa Senator Bill Anderson. Within America's heartland, the wind industry employs at least 6,000 Iowans right now.

"If you're looking for potential jobs and career growth, we are in prime wind country," Moeller noted. "With Iowa being such a leader in wind energy, most of our graduates stay in-state, but this is a program that also offers national opportunities."

HEADLINES

Cloud County Community College holds drone class

The Wind Energy Department of Cloud County Community College (CCCC) recently held a two-day, 12-hour "Introduction to Unmanned Aerial Vehicle (UAV) Community Enrichment" class June 15-16 in Concordia, Kansas.

The class gave anyone in the community interested in enrolling for the course the opportunity to get hands-on experience flying, configuring, and taking photos with the UAVs, as well as experience on current status with FAA rules. Monte Poersch, CCCC Wind Energy instructor, taught the class.

The Wind Energy Department at CCCC has acquired, through a grant, four new UAVs. The program is integrating UAVs for blade inspections and for substation and transmission line inspections. UAVs can be used to inspect wind turbine blades much more efficiently and safely than the process currently used for those inspections. Students are being trained to fly the UAVs and are learning more advanced techniques of video and photography as well as programming completely autonomous flights.

Those attending the two-day training said, "This was exactly what I wanted to learn." And, "I plan to purchase a small drone and learn to fly it and begin a small business with a friend."

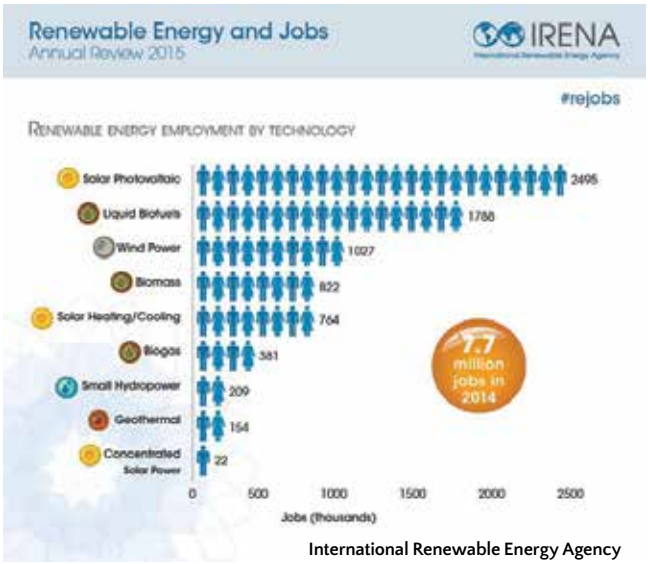
Additional comments were, "It was only 2 days," and "It was too short."

— Cloud County Community College

Renewables industry employment up 18 percent

IRENA report shows renewable energy added 1 million jobs globally over 2014

International Renewable Energy Agency



International Renewable Energy Agency

More than 7.7 million people worldwide are now employed by the renewable energy industry, according to a new report released by the International Renewable Energy Agency (IRENA). This is an 18 percent increase from last year's figure of 6.5 million. The report, Renewable Energy and Jobs — Annual Review 2015, also provides a first-ever global estimate of the number of jobs supported by large hydropower, with a conservative estimate of an additional 1.5 million direct jobs worldwide.

"Renewable energy continues to assert itself as a major global employer, generating strong economic and social benefits worldwide," said IRENA Director-General Adnan Z. Amin. "This increase is being driven, in part, by declining renewable energy technology costs, which creates more jobs in installation, operations, and maintenance. We expect this upward trend to continue as the business case for renewable energy continues to strengthen."

As in previous years, renewable energy employment is shaped by regional shifts, industry realignments, growing competition and advances in technologies and manufacturing processes. Jobs in the renewable energy sector are increasingly being created in Asia, with five of the 10 countries with the most renewable energy jobs now located in the region (China, India, Indonesia, Japan, and Bangladesh). As a result, even with continued jobs growth, the European Union and the United States now represent 25 percent of global renewable energy jobs, compared to 31 percent in 2012.

In the United States, total solar employment surged 22 percent from 142,700 to 173,800 and overall wind jobs increased 43 percent since last count to 73,000. Data also finds that employment of women in the solar industry is on the rise, increasing from 26,700 to 37,500.

"Here in the United States, a country fast becoming a leader in renewable energy innovation, we are seeing a rapid rise in deployment of solar PV in particular, along with strong investment in wind in several states and a leading focus on development of advanced biofuels," Amin said. "Overall, wind jobs in the U.S. have increased by almost half — 43 percent – since last count to 73,000, whilst total solar employment surged 22 poercent to 173,800 in 2014. We have also found that the employment of women in the U.S. solar industry is on the rise, increasing from 26,700 to 37,500 last year."

The 10 countries with the largest renewable energy employment figures are China, Brazil, the United States, India, Germany, Indonesia, Japan, France, Bangladesh and Colombia. The solar PV industry is the largest renewable energy employer

> Renewable energy continues to assert itself as a major global employer, generating strong economic and social benefits worldwide.

worldwide with 2.5 million jobs, followed by liquid biofuels with 1.8 million jobs, and wind power, which surpassed 1 million jobs for the first time this year. The employment increase spreads across the renewable energy spectrum with solar, wind, biofuels, biomass, biogas, and small hydropower, all seeing increases in employment.

— *Source: IRENA*

HEADLINES

Chevron donates gearbox to Casper College program

The Casper College Renewable Energy Technology Program has received a substantial equipment donation from Chevron Power and Energy Management Company: a Winergy gearbox from one of the company's turbines located near Casper, Wyoming.

"This gearbox will provide Casper College students an opportunity to learn about maintenance technology on a life-size gearbox," said Lesley Travers, dean for the Casper College School of Business and Industry. "They will also learn about bore scoping, gearbox inspection, troubleshooting, torque specifications, and oils and greases."

The 55,000-pound gearbox came from a 1.5MW GE wind turbine.

"This particular piece of equipment is generally located over 200 feet high in the nacelle of a turbine, so students without proper climb training do not generally have the opportunity to see close up or train on this critical piece of the turbines," said Chevron's Policy, Government and Public Affairs Senior Advisor Denise Reed.

Chevron has partnered with Casper College since 2009 with a variety of monetary contributions to the program — most recently, a donation of $5,000 to support the college's renewable energy technology program. In addition, Chevron also provides tours, guest speakers, and training equipment to the program.

— Casper College

Wind Educational Institutions in the U.S.

Alphabetized by state

Coconino Community College
Arizona
Community College
Associate's
www.coconino.edu
(800) 350-7122

Airstreams Renewables Inc.
California
Career
Certificate
www.air-streams.com
(661) 822-3963

Northeastern Junior College
Colorado
Community College
Associate's
www.njc.edu
(800) 626-4637

Ecotech Institute
Colorado
Career
Associate's
www.ecotechinstitute.com
(877) 326-5576

Redstone College
Colorado
Career
Associate's
www.redstone.edu
(877) 801-1025

College of Southern Idaho
Idaho
Community College
Certificate; Associate's
agriculture.csi.edu/wind
(208) 732-6403

Danville Area Community College
Illinois
Community College
Associate's
www.dacc.edu
(217) 443-3222

Heartland Community College
Illinois
Community College
Associate's
www.heartland.edu
(309) 268-8860

Highland Community College
Illinois
Community College
Certificate; Associate's
www.highland.edu
(815) 235-6121

Illinois Valley Community College
Illinois
Community College
Certificate (Basic, Advanced)
www.ivcc.edu
(815) 224-2720

Lake Land College
Illinois
Community College
Certificate; Associate's
www.lakeland.cc.il.us
(217) 234-5253

Northern Illinois University
Illinois
University
Certificate; Graduate
www.niu.edu
(815) 753-1000

Sauk Valley Community College
Illinois
Community College
Certificate
www.svcc.edu
(815) 288-5511

Ivy Tech Community College
Indiana
Community College
Certificate; Associate's
www.ivytech.edu
(888) 489-5463

Des Moines Area Community College
Iowa
Community College
Associate's
windenergy.dmacc.edu
(877) 863-6222

Iowa Lakes Community College
Iowa
Community College
Diploma; Associate's
www.iowalakes.edu
(800) 521-5054

Kirkwood Community College
Iowa
Community College
Associate's
www.kirkwood.edu
(319) 887-3658

Northeast Iowa Community College
Iowa
Community College
Diploma; Associate's
www.nicc.edu
(800) 728-2256

Vatterott College
Iowa
Community College
Certificate
www.vatterott.edu
(888) 202-2636

Western Iowa Tech Community College
Iowa
Community College
Associate's
www.witcc.edu
(800) 352-4649

Iowa State University
Iowa
University
Ph.D.; Undergrad minor; Research
www.engineering.iastate.edu
(515) 294-5933

Cloud County Community College
Kansas
Community College
Certificate; Associate's
www.cloud.edu
(800) 729-5101

Northern Maine Community College
Maine
Community College
Certificate; Associate's
www.nmcc.edu
(207) 768-2700

University of Massachusetts–Amherst/Wind Energy Center
Massachusetts
University
MS; Research
www.umass.edu/windenergy
(413) 545-4359

Delta College
Michigan
Community College
Associate's
www.delta.edu
(989) 686-9000

Kalamazoo Valley Community College
Michigan
Community College
Certificate
grovescenter.kvcc.edu
(269) 353-1253

Minnesota West Community and Technical College
Minnesota
Community College
Associate's
www.mnwest.edu
(800) 658-2330

Riverland Community College
Minnesota
Community College
Diploma
www.riverland.edu
(800) 247-5039

Crowder College
Missouri
Community College
Certificate; Associate's
www.crowder.edu
(417) 451-3223

Pinnacle Career Instutute
Missouri
Career
Short course; Certificate; Associate's (Online)
www.pcitraining.edu
(877) 241-3097

Montana State University
Montana
University
Certificate; Doctoral; Master's
www.montana.edu
(406) 994-0211

Montana Tech
Montana
University
Certificate; Associate's
www.mtech.edu
(800) 445-8324

Northeast Community College
Nebraska
Community College
Diploma; Associate's
www.northeast.edu
(800) 348-9033

Western Nebraska Community College
Nebraska
Community College
Certificate
www.wncc.net
(308) 254-5450

Clovis Community College
New Mexico
Community College
Certificate; Associate's
www.clovis.edu
(575) 769-4904

Mesalands Community College
New Mexico
Community College
Certificate; Associate's
www.mesalands.edu
(575) 461-4413

Clinton Community College
New York
Community College
Associate's
www.clinton.edu
(518) 562-4200

Hudon Valley Community College
New York
Community College
Certificate
www.hvcc.edu
(877) 325-4822

Appalachian State University
North Carolina
University
MS; Undergrad minor
wind.appstate.edu
(828) 262-7333

Bismarck State College
North Dakota
Community College
Certificate; Associate's
energy.bismarckstate.edu
(800) 852-5685

Lake Region State College
North Dakota
Community College
Certificate; Associate's
www.lrsc.edu
(701) 662-1519

Lorain County Community College
Ohio
Community College
Certificate; Associate's
www.lorainccc.edu
(800) 995-5222

Canadian Valley Technology Center
Oklahoma
Career
Certificate
www.cvtech.edu
(405) 262-2629

High Plains Technology Center
Oklahoma
Career
Certificate
www.hptc.edu
(580) 571-6167

Oklahoma State University Oklahoma City
Oklahoma
University
Certificate; Associate's
www.osuokc.edu/wind
(800) 560-4099

Columbia Gorge Community College
Oregon
Community College
Certificate; Associate's
www.cgcc.cc.or.us
(541) 506-6011

Penn State
Pennsylvania
University
MPS (Online)
www.wind.psu.edu
(814) 865-2569

Mitchell Technical institute
South Dakota
Community College
Associate's
www.mitchelltech.edu
(800) 684-1969

Amarillo College
Texas
Community College
Certificate (Basic, Advanced); Associate's
www.actx.edu/wind
(806) 371-5000

Clarendon College
Texas
Community College
Certificate (Level I, Level II); Associate's
www.clarendoncollege.edu
(800) 687-9737

South Plains College
Texas
Community College
Associate's
www.southplainscollege.edu
(806) 894-9611

Texas A&M University
Texas
University
Certificate; Master's
www.tamu.edu
(979) 458-1644

Texas Christian University
Texas
University
Bachelor's; Master's
www.tcu.edu
(817) 257-7000

Texas State Technical College Harlingen
Texas
Community College
Certificate (I, II); Associate's
www.tstc.edu/harlingenwindtech
(800) 852-8784

Texas State Technical College West Texas
Texas
Community College
Certificate (I, II); Associate's
www.tstc.edu/westtexaswet
(325) 235-7300

Texas Tech University/National Wind Institute
Texas
University
Certificate; BS; Ph.D.
www.depts.ttu.edu/nwi
(806) 742-3476

West Texas A&M University
Texas
University
Certificate; BS
www.wtamu.edu
(806) 651-0000

Dabney S. Lancaster Community College
Virginia
Community College
Certificate
www.dslcc.edu
(540) 863-2800

Walla Walla Community College
Washington
Community College
Associate's
www.wwcc.edu
(509) 522-2500

Lakeshore Technical College
Wisconsin
Community College
Associate's
www.gotoltc.edu
(888) 468-6582

Madison Area Technical College
Wisconsin
Community College
Certificate
madisoncollege.edu
(800) 322-6282

Northeast Wisconsin Technical College
Wisconsin
Community College
Associate's
www.nwtc.edu
(800) 422-6982

Eastern West Virginia Community and Technical College
West Virginia
Community College
Certificate; Associate's
www.easternwv.edu
(877) 982-2322

Casper College
Wyoming
Community College
Certificate; Associate's
www.caspercollege.edu
(800) 422-2963

Laramie County Community College
Wyoming
Community College
Associate's
www.lccc.wy.edu
(800) 522-2993

Jim Morgan
Director of the North American
Wind Research and Training Center
Mesalands Community College

(575) 461-4413
www.mesalands.edu
mesalands
/mesalands

Could you give us a general overview of Mesalands' Wind Energy Training program?

The Wind Energy Technology Program at Mesalands Community College provides real-world training experience, on the commercial-grade, 1.5MW GE wind turbine located on campus at the North American Wind Research and Training Center. The Wind Center provides state-of-the-art facilities for training qualified individuals in wind energy technology, as well as ample space to host cutting edge research in commercial wind energy technology. The training center is approximately 25,000-square-feet and includes both mechanical and electronic/electrical laboratories. Both laboratories have simulators to allow students to learn using a hands-on approach. The electrical laboratory contains computers that deliver computerized training as a complement to the laboratory exercises.

Which diplomas or degrees are offered?

Mesalands Community College offers three different wind energy training programs. The first is an Occupational Certificate program, which includes all of the wind technical courses in the first year for a total of 21 college credits. This is particularly attractive to prospective students that cannot attend the full 2-year program due to family concerns or financial difficulties. Re-entry into the degree program using these credits is at some later date is recommended and approved. The college also offers a one-year Applied Science Certificate in Wind Energy Technology. The Associate of Applied Science Degree in Wind Energy Technology is awarded after 2 years of study for a total of 60 credits.

Could you describe the instructional philosophy behind the program?

A key word for our instructional philosophy is "hands-on." Although the curriculum was in place before the wind turbine was commissioned, the actual wind energy technology classes started in the Fall of 2008, the same semester the turbine was commissioned. That decision was indicative of wanting the students to have experience on a real operational industrial-size turbine. The turbine is always manually shutdown for training two to three times a week for students to train. That training is an integral part of their instruction as they climb and learn about the features and problems associated with the turbine. Troubleshooting is an industry priority and the students here do that on an industrial size wind turbine, not just out of a book.

What are some of the opportunities for students beyond classroom instruction?

The students usually take field trips to one of the local wind farms and also take field trips to a local transmission sub-station to see and learn about the different operational components required for a sub-station, which is an integral part of wind farms. The College owns a meteorological tower nearby that the students visit to learn about the devices on the tower. The data is collected by the wind program and students are exposed to the criteria and use the data in wind farm economics and strategies.

What are the career opportunities after graduation?

The graduates of the Wind Energy Technology Program are qualified as wind energy technicians and capable of both corrective and preventive maintenance on industrial wind turbines. Students in the degree program in their first year are invited to apply for internships with wind maintenance companies and if selected, can gain field experience and earnings prior to graduation. Since the training includes the elements of an industrial maintenance technician, graduates can transition to other technical fields.

We have several companies regularly requesting to hire our graduates and notifying them of employment opportunities. Starting this upcoming academic year, we will have a new Career Services on campus to help our graduates find future employment.

How much does the program typically cost?

Mesalands Community College was ranked 7th among the "Most Affordable Community Colleges" in the Nation, according to AffordableColleges.com. Mesalands provides federal and state financial aid for qualifying students, in the form of scholarships, grants, and work-study. The average cost of attendance for the Wind Energy Technology Program for one semester (15-credit hours) is approximately $2,500 per semester. This cost includes non-resident tuition, tuition, fees, and books.